1.   Listing of the claims:

1. (Original)   A method of distributing streaming data in a wide area network that comprises a plurality of autonomous systems having an overlay network of proxy servers, the method comprising communicating between a proxy server and neighboring proxy servers to identify proxy servers and data paths for providing a data stream to a requester that optimize utilization of network resources based upon a predetermined relationship that characterizes tensions of said proxy servers and data paths, said communicating comprising exchanging messages with said neighboring proxy servers; and activating an identified neighboring proxy server in response to said communicating to form a portion of a hierarchical overlay network structure of interconnected proxy servers that establish optimum data paths through the overlay network for supplying the data stream to said requester.

2. (Original)   The method of claim 1 further comprising dynamically reconfiguring said hierarchical structure of proxy servers in response to said communicating as conditions change to maintain said optimum utilization of resources.

3. (Original)   The method of claim 2, wherein said dynamically reconfiguring comprises changing the hierarchical network as loading changes.

4. (Original)   The method of claim 3, wherein said dynamically reconfiguring comprises consolidating proxy servers to optimize loading on proxy servers as loading decreases.

5. (Original)   The method of claim 4, wherein said consolidating comprises consolidating the loads at a proxy server to optimize loading upon the loads dropping to a predetermined threshold.

6. (Original)   The method of claim 2 further comprising sending a consolidate message from a proxy server requesting consolidation of data loads to a neighboring proxy server upon data loads to said requesting proxy server dropping to a predetermined threshold.

7. (Original)   The method of claim 6, wherein said neighboring proxy server is selected to accept said data loads where consolidation of data loads at said neighboring proxy server would result in optimization of loading at such neighboring proxy server.

8. (Original)   The method of claim 2, wherein said dynamically reconfiguring comprises redistributing loads from said identified neighboring proxy server to another proxy server when the loading on said identified neighboring proxy servers reaches a predetermined threshold.

9. (Original)   The method of claim 2 further comprising sending a redistribute message requesting redistribution of data loads from said identified neighboring proxy server to another proxy server upon data loads at said identified neighboring proxy server reaching a predetermined threshold.

10. (Original) The method of claim 2, wherein said neighboring proxy server is selected as a candidate to accept said data loads where redistribution of data loads at said neighboring proxy server would optimize loading at such neighboring proxy server.

11. (Original) The method of claim 1, wherein said optimum utilization of network resources comprises optimizing network bandwidth.

12. (Original)   The method of claim 1, wherein said activating comprises activating said proxy servers and paths to minimize tension.

13. (Original) The method of claim 1, wherein said predetermined relationship comprises a relationship between tension and load.

14. (Original) The method of claim 1, wherein said optimizing comprises activating proxy servers and paths that minimize costs.

15. (Original)   The method of claim 1, wherein said activating comprises activating proxy servers based upon the loadings of the proxy servers.

16. (Original) The method of claim 1, wherein said activating comprises activating proxy servers to reduce latency in the data paths between said proxy servers and said requesters.

17. (Original)   A method of distributing streaming data in a wide area network that comprises a plurality of autonomous systems having an overlay network of proxy servers, the method comprising communicating between proxy servers to identify selected proxy servers and data paths that optimize utilization of network resources based upon a predetermined relationship that characterizes tensions of said proxy servers and data paths, each proxy server identifying an

optimum neighboring proxy server and optimum path to service a requester using said predetermined relationship by exchanging messages with neighboring proxy servers; activating in response to said communicating first proxy servers of the overlay network to form a first hierarchical overlay network structure of proxy servers to establish a plurality of data paths through the overlay network to distribute a first data stream from a first data source to a first group of requesters; and activating in response to said communicating second proxy servers of the overlay network to form a second hierarchical structure of proxy servers to establish another plurality of data paths through the overlay network to distribute a second data stream from a second data source to a second group of requesters; said first and second hierarchical structures sharing one or more of said first and second proxy servers.

18. (Original) The method of claim 17 further comprising dynamically reconfiguring said first and second hierarchical structures in response to said communicating as conditions change to maintain said optimum utilization of network resources.

19. (Original) The method of claim 18, wherein said dynamically reconfiguring comprises redistributing data loads from one proxy server to another proxy server upon data loads at the first-mentioned proxy server reaching a predetermined threshold.

20. (Original) The method of claim 18, wherein said dynamically reconfiguring comprises consolidating data loads from one proxy server to another proxy server upon data loads at the first-mentioned proxy server decreasing to a predetermined threshold.

21. (Original) The method of claim 18, wherein said dynamically reconfiguring comprises deactivating one or more proxy servers and consolidating data loads at an active proxy server as requesters decrease.

22. (Original) The method of claim 18 further comprising dynamically reconfiguring said first and second hierarchical structures independently of one another as loadings change.

23. (Original) The method of claim 17, wherein said activating comprises activating proxy servers to optimize network bandwidth in distributing said data steams.

24. A method of distributing streaming data in a wide area network that comprises a plurality of autonomous systems having an overlay network of proxy servers, the method

comprising communicating between proxy servers to identify proxy servers and data paths for providing a data stream to a requester that optimizes utilization of network resources based upon a predetermined relationship that characterizes tensions of said proxy servers and data paths, said communicating comprising exchanging messages with neighboring proxy servers; storing information about said neighboring proxy servers; activating in response to said communicating and storing an identified proxy server to form an optimum data path through the overlay network for supplying the data stream to said requester.

25. (Original)   The method of claim 24, wherein said communicating comprises periodically exchanging messages with neighboring proxies that contain information regarding status, and communicating messages following status changes.

26. (Original)   The method of claim 25 further comprising communicating a redistribute message requesting redistribution of loads from a proxy server upon said proxy server becoming overutilized.

27. (Original)   The method of claim 25 further comprising communicating a consolidation message from a proxy server requesting consolidation of loads upon said proxy server becoming underutilized.

28. (Original)   The method of claim 24 further comprising determining at a proxy server receiving a join request the load status of such proxy server; determining whether there is a more optimum neighboring proxy to accept the request; and admitting the request upon determining there is no other optimum proxy for accepting the request.

29. (Original)   The method of claim 28 further comprising checking, upon receiving the join request, whether a loop is created, and, upon determining that a loop is created, redirecting the request to another proxy.

30. (Original)   The method of claim 28 further comprising determining the status of said proxy server receiving said join request, and, upon determining that accepting such request will cause overutilization of such proxy server, executing a process to determine whether redistributing a portion of the load of such proxy server will enable such proxy server to admit

the join request, and upon determining that redistribution of a portion of the load is possible, redistributing said portion of said load and admitting the join request.

31. (Original)   The method of claim 30 further comprising, upon determining redistribution of a portion of said load is not possible, determining whether there is another suitable proxy and redirecting the join request to such suitable proxy, otherwise denying said request.

32. (Original)   The method of claim 24 wherein said predetermined relationship comprises a relationship between tension and loading.

33. (Original)   The method of claim 32, wherein said optimum utilization of network resources comprises loading said network resources at a level which produces a minimum tension.